

REMARKS

Claims 3, 4, 6 and 8-16 are pending in the above-identified application.

Claim Amendments

By this amendment, claims 4 and 13 are amended to state that the mixing ratio of the polyisocyanate to the aqueous polyol has a molar ratio (NCO/OH) of greater than 1.0 to 1.6. Support for this amendment resides at page 9, lines 18-20 of the specification. New claims 15 and 16 are added, support for which resides at page 26, line 23. No new matter is added by this amendment.

Advisory Action

Applicants acknowledge with appreciation the Examiner 's indication in the Advisory Action that the rejection over Iwami alone is withdrawn. Applicants also note that the Examiner indicated that the prior response would be entered. Hence, the present response is based on the claims as amended in the prior response.

Present Invention and Its Advantages

The present invention is directed to a golf ball having a paint film which contains a base resin made by curing an aqueous polyol and a polyisocyanate, wherein the aqueous polyol is an aqueous acrylic polyol, an aqueous polyester polyol, or an aqueous alkyd resin, as recited in the present claims. As noted at the bottom of page 1 of the present specification, conventional golf ball paint layers have been formed using "solvent borne" paints, such as urethane paints and epoxy paints which means that these paints are formed from components that dissolve in organic solvents, or non-aqueous components, such as non-aqueous polyol and isocyanate.

Thus, the production process requires the presence of disadvantageously large amounts of volatile organic solvents. In contrast, as noted at pages 1-2 of the specification, the golf ball

paint film employed in the present invention is formed using an “aqueous” polyol selected from an aqueous acrylic polyol, an aqueous polyester polyol or an aqueous alkyd resin. It is noted an “aqueous” polyol has a chemical structure which allows the polyol to dissolve in an aqueous medium. This is well known in the polymer chemistry field and can be easily be confirmed by reference to a wide variety of sources. In contrast, a “solvent borne” or “non-aqueous” polyol has a chemical structure which allows this polyol to be dissolved in an organic medium, but not an aqueous medium.

The employment of the paint film for the golf ball of the present invention provides for advantages during the production process, since advantageously, large amounts of volatile organic solvents are not required during the production process of the golf ball of the present invention. In addition, the particular aqueous polyol components employed in the paint film of the present invention exhibit advantageously improved durability and advantageous reductions in production time as compared to a conventional golf ball paint film formed using a conventional aqueous polyol as noted at pages 1-2 of the present specification and as evidenced by the comparatively poor results shown by Example No. 4 in Table 3 at pages 30-31 of the present specification.

The claimed invention is neither disclosed nor suggested by the cited prior art.

Rejection under 35 USC 103(a)

Claims 1, 3, 4, 6 and 8-14 stand rejected under 35 USC 103(a) as being unpatentable over Patzschke '822 in combination with Iwami '667. This rejection is respectfully traversed.

Applicants initially note that claim 1 was cancelled in applicants' prior response. Hence, only claims 3, 4, 6 and 8-14 remain under rejection.

The Examiner previously took the position that the reference “exemplifies (#10) an aqueous coating composition of polyesterpolyol and polyisocyanate.” The Examiner also notes that the polyesterpolyol has a hydroxyl number of 82, with preferred molecular weights of 3000-

6000. The Examiner further takes the position that Iwami teaches “similar polyesterpolyol + polyisocyanate coatings” on golf balls, and that it would thus be obvious to place the coating of Patzschke on golf balls.

In the Advisory Action, the Examiner asserts that Iwami is relied upon as a secondary reference to teach suitable substrates (i.e., golf balls) for polyesterpolyol/diisocyanate coatings, with Patzschke’s NCO/OH ratio overlapping that of applicants.

In response, Patzschke ‘822 discloses aqueous coating compositions. Patzschke ‘822 fails to disclose or suggest the use of the described compositions in a golf ball paint film as in the present invention.

Patzschke teaches a mixing ratio of polyisocyanate to a polyol of 0.1 to 1 (column 7, lines 13-16). The paint composition of Iwami in which the NCO/OH ratio falls within the above range disclosed in Patzschke are compositions 4 and 5 (where the ratio is 1.0) and 6 (where the ratio is 0.7) - see column 6, line 25 – column 7, line 6. The hydroxyl values of compositions 4 and 5 are both 130 mg KOH/g which is beyond the range of the claimed invention (50-100 mg KOH/g). The NCO/OH ratio of 0.7 in composition 6 is below the range of the claimed invention.

Therefore, even if the coating of Patzschke is combined with any of the coating compositions of Iwami in order to coat a golf ball, the resultant composition would still fall short of yielding the claimed invention, and thus fail to achieve the above-mentioned advantages of the present invention.

In an attempt to clarify the distinctions between the claimed invention and the teachings of the cited prior art, claim 1 is amended to state that the NCO/OH ratio of the claimed invention is within the range of greater than 1 to 1.6. The now-stated ratio is neither disclosed nor taught by the cited prior art.

Patzschke by contrast teaches a lower NCO/OH ratio – however, applicants note at page 9, lines 20-25 of the specification that such lower NCO/OH ratio makes the curing reaction incomplete, and causes a tackiness of the resulting paint film if used in the coating of a golf ball which tackiness collects dirt. Thus, even if the coating of Patzschke had been placed on the golf ball of Iwami, the resultant combination would neither yield the present invention, nor the result of the present invention whereby sufficient curing reaction is achieved with a short curing time.

Further, although Patzschke considers a reduction in the amount of organic solvents in the lacquer industry (see col. 1, lines 11-15), it neither discloses nor suggests any of the resulting problems when the aqueous coating of Patzschke is used for a golf ball. On the other hand, the object of the golf ball of Iwami is to improve the wear-resistance of the paint compositions (column 7, line 22 to column 8, line 20).

Accordingly, a person of ordinary skill in the art would not be motivated to place the coating of Patzschke on the golf ball of Iwami in order to achieve the object of the present invention – i.e., shortened curing time – thereby maintaining higher productivity (see page 2, lines 11-24 of the specification).

In view of the above, the rejection is without basis and should be withdrawn.

The application is accordingly believed to be in condition for allowance, and an early indication of same earnestly is solicited.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

A check in the amount of \$330.00 is attached as payment for the second one month extension of time.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

By  _____

Andrew D. Meikle
Registration No.: 32,868
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Rd
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant